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THE NEW YORK
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SOME CONSIDERATIONS OF THE MODE OF INFECTION AND EXTENSION OF ERYSIPELAS

JOSEPH C. DOANE, Philadelphia

(Delivered before the New York Academy of Medicine, January 21, 1926)

Recently, I have been much entertained by reading a treatise, written forty years *before* Fehleisen published his monograph, by Mr. Thomas Nunnelly of Leeds, on the nature and treatment of erysipelas. This writer discussed in detail the question as to whether erysipelas is a specific disease of the skin, or whether the dermic manifestation is but the result of a morbid condition, more deeply situated in the tissues.

And, yet, a like time *after* the isolation of the streptococcus of erysipelas, we are but little wiser about many of the important phases of the disease—particularly treatment—than was either Nunnelly of Leeds, or Fehleisen and his contemporaries of Berlin. True, today, we somewhat sheepishly speak of idiopathic diseases, and, as a result, cases of idiopathic erysipelas and tetanus are gradually disappearing from our medical literature.

We still, however, find here and there persons who look upon the development of erysipelas as an act of God, and who religiously prepare for its coming by having handy cranberries, as a poultice, and a red flannel shirt as a protection. Others, still adhering to the belief that there is safety in colors, use ichthyol —mighty in appearance and dirty in fact—as an external application, and, after locking up the bowels with tincture ferric chlorid, rest from their labors. I have not been able to learn of any one recently following the advice of Celsus, of the first century, in using a beet leaf as an outside covering for all applications to the rash in erysipelas.

In the past decade there have been admitted to our service, at the Philadelphia General Hospital, 1,828 patients suffering with erysipelas. In a rather informal way, I wish to present some observations, many of which, however, have been made before, relative to the manner of infection, and the progress of the rash in this disease.

Weidman, of the Department of Cutaneous Medicine at the University of Pennsylvania, has made some interesting histologic studies of skin sections, from one of our cases, which came to post-mortem.

It was found, first, that whereas the normal thickness of the skin in this case was 7 mm., sections from the involved area were 10 mm. thick. There was no hyperplasia of the epidermal cells, the individual cells being moderately swollen. The corium exhibited the most striking pathologic changes. From 12 to 15 mm. in advance of the edge of the rash were seen many cocci, which did not usually show chain formation. Here, particularly, within and in advance of the rash, many polymorphonuclear cells and fewer lymphocytes were seen. Phagocytosis was markedly evident, some cells containing two or three cocci. Ballooning and disintegration of the blood-vessel walls, with perivascular infiltration with both leukocytes and lymphocytes, was noted.

Unna mentions the great preponderance of mononuclear lymphocytes in preparations of erysipelatous skin. This was not borne out in this study, possibly being explained by the presence of pus. Many crystals, bronze in color and probably representing blood pigment, were observed. It is suggested that the dusky color of the rash might be thus explained. The lymphatic spaces of the corium were distended with many leukocytes, lymphocytes, and paired cocci. There was advanced degeneration of the sweat glands.

The corium, then, is chiefly affected in this process, and the organisms advance by way of its dermal lymphatic spaces to a point, at least, 15 mm. beyond the raised edge of the rash, before manifesting themselves on the surface.

When the older literature is inspected, from the clinical standpoint, one is impressed with two facts:

1. The confusion which existed in the minds of physicians as to the true nature of the disease; many conditions, being so diag-

nosed, which ofttimes manifested sharp epidermic tendencies, and which were probably either diphtheria or cellulitis of a pyogenic origin.

2. The great preponderance in the incidence of cases with a so-called idiopathic or unexplained origin.

When the microscope was added to the physician's armamentarium the first misapprehension was largely corrected, but the latter belief, in a measure, still persists. Since the term "idiopathic" was most frequently applied to the facial type, the origin of the greatest group of cases was not at all clear.

In the series of cases, to which reference has already been made (and which comprised 1,828 cases), in 1,531, or eighty-four per cent., the face was involved. Not in all of these patients, however, was the original insult to the mucous membrane of the nasopharyngeal cavities. In Boston's series of 552 cases, 485, or 88 per cent.; and in Ander's collection of 712 cases, 506, or 72.6 per cent., were of the facial type. In a total, then, of 3,092 cases, the facial type was observed in 2,522, or 81.2 per cent. Of the first group, one hundred typical cases were selected for further study and comparison. In this group were ninety-three cases of facial erysipelas. Of these cases, the chin was not involved in seventy-three, and a part or all of the upper lip was spared in slightly more than one-half of these patients. The nose was not affected in but one patient, and the eyelids escaped in four cases.

Now what is the reason for the greater relative frequency of facial erysipelas, with its attendant usual distribution and progress of the rash; and, secondly, why is erysipelas of the face usually self-limiting?

The skin and subcutaneous tissues of the face are very plenteously supplied with lymphatics, and these lymph spaces communicate rather directly with the nasal, buccal, and pharyngeal cavities. Now, while the lymph vessels of the anterior nasal chamber drain into the superficial and deep cervical chain of glands, those from the posterior nasal spaces, the pharyngeal wall, and the tonsil itself, drain toward the retropharyngeal glands. Nevertheless, the fact that these mucous-membrane lined cavities are adjacent to, and joined with, the facial lymphatics, must explain, in part, the great frequency of this type of erysipelas. Nor should it be forgotten that the head not only is a favorite target for a policeman's baton, a cobblestone, or a

bottle, formerly used as a container for intoxicants, but, also, the bacteriologic uncleanliness of the head and its sinuses should be borne in mind. The frequent presence, then, of the streptococcus in the nose and throat, and the frequency with which the mucous membrane of the anterior nasal chamber is wounded by the fingernail, or abraded by catarrhal infection, explains, it seems, not only the source of the offending organism, but, also, its port of entry.

I have never been able to understand why erysipelas, produced by the entrance of the streptococcus through a four-inch appendectomy wound, should be discussed in our standard works on surgery; while this disease, produced by the entrance of the same organism, through a pin-point wound, immediately becomes suitable for discussion in our standard medical works.

My colleague on this program will, no doubt, speak in detail as to the specificity in erysipelas of a definite group or strain of organisms. These organisms being present in the nasal chamber early reach the mucocutaneous junction, and produce the typical erysipelatous dermatitis. Why the roof, and not the floor, of the nose is traversed is not clear, unless, again, favorable lymphatic flow is causative. Their journey from the tonsillar fossa is less easily explained. Inflammatory reactions ofttimes, by obstructing normal lymph flow, reverse its direction, and, as is seen in metastatic malignancies, actually float the offending cells backward toward the source of the lymph channels. Either in this way, or by direct tissue spread, or by transplantation in coughing or sneezing, the streptococci reach the mucous membrane of the anterior nasal chamber and produce a true erysipelas of these tissues.

Why this does not happen oftener to more people is more or less uncertain.

We know but little concerning the rise and fall of virulency, and the waxing and waning of individual resistance. However, that true streptococci carriers exist seems probable.

The frequency with which a hemolytic streptococcus can be isolated from the throat of patients, suffering with erysipelas, is no more remarkable than the ease with which these organisms can be found in the nose and throat of healthy persons. The marked seasonal incidence of the disease, however, suggests that lowered bodily resistance, coupled, perhaps, with the usual win-

ter and spring increase in catarrhal affections of the nose and throat, play a not unimportant rôle.

Moreover, the prodromal symptoms of angina and rhinitis are, in truth, as much a part of the symptomatology of the disease, in the facial type, originating within the nasal cavity, as is the classical butterfly when evident on the face.

In thirty-seven of our one hundred cases, to which reference has been made, a history of angina and rhinitis, from one to three days before the rash appeared, was given, although M. Glazar reports but thirteen cases out of 301, as exhibiting these symptoms. We have seen one case in which it was very probable that the organism traversed the mucous membrane of the lachrymal duct, to produce an erysipelas, beginning at the inner canthus of the eye. It is the belief of some observers that the Eustachian tubes may also serve to conduct the infecting organisms to the inner ear, and, in certain favorable conditions, to the skin of the ear and face.

It would seem that there are two factors concerned in the self-limitation of facial erysipelas: the distribution of the facial lymphatics, and the production, on the part of the patient, of some degree of local or general immunity to the streptococcus. The direction of lymphatic drainage probably explains the frequent sparing of upper lip and chin; the retardation of the progress of the rash at and below the hair line; the speed with which the cheeks are involved, as well as the rapidity of spread over the scalp, once the forehead has been passed. It is, also, probable that the usual spread of the rash, when migratory tendencies are exhibited, from the face to the anterior chest, by way of the scalp, posterior cervical region, scapular and preclavicular tissues has an explanation in the direction and speed of lymphatic flow. When the chin is involved, it is often observed that the lower lip is reached by way of the lateral cervical and inframental tissues, and then, by a sort of retrograde process, to the chin. The presence of wrinkles about the face may also play a part in confining the infection to the tissues of the face and scalp. Indeed, if the lymph spaces of the corium can be occluded by the formation of an artificial wrinkle by the use of adhesive plaster and a match or lead pencil, the progress of the rash, at least in this direction, is halted. In the histologic report, mentioned earlier

in this paper, the pathologist described a strip of thinning, probably due to the use of contractile collodion. In migratory cases there is, no doubt, either a lowering of general resistance to infection, or an elevation of the virulency of the offending organism. The absence of natural barriers to further progress, found about the head, also favors migration of the rash.

It appears difficult to reconcile the apparent self-limiting tendency of facial erysipelas on the basis of an establishment of an immunity with the frequency of relapses and early recurrences which is observed.

Corbett and Melsome, Gay and Rhodes, and Gay working independently, have contributed some interesting observations touching on this point. The first-mentioned investigators, after producing an erysipelatous infection by inoculating a rabbit's ear, observed that in from twenty-two to one hundred days after recovery, reinoculation at this site failed to reproduce a like infection. Gay and Rhodes, also working with rabbits, noted a resistance to reinfection, after the typical erysipelatous rash had run its course over the animal's abdomen. This immunity, whether local or general in character, was found to last for, at least, three months.

That streptococci of more or less virulence can be isolated from the tissues lately involved, in healed erysipelas, has been more than once demonstrated. To Gay, this latter fact satisfactorily demonstrated the establishment of a definite local or general immunity. We have, however, observed relapse after relapse in the human being after a severe erysipelatous infection had subsided. It must be granted, however, that both the relapse and the early recurrences are not attended with the same severity of either local or general symptoms. A case in point may be cited:

Some time ago an elderly male patient, of apparent low vitality, was transferred from the neurological department to our service at the Philadelphia General Hospital, suffering with erysipelas of the left side of the face. In a few days the rash, which was only slightly elevated, and not accompanied with a great degree of fever, subsided. In thirty-six hours, a second invasion of the skin, beginning in the region of the inner canthus of the eye, was noted. This was followed by five successive invasions, none spreading farther than the region of the ear on this side.

A hemolytic streptococcus was repeatedly isolated from the left lachrymal sac. The source of the infection was clear, and the acquisition of any marked local or general immunity was, of course, questionable.

In this patient, it seems, is epitomized many of the probabilities covering the reason for relapse and recurrence in erysipelas.

In our series of one hundred cases, eight had had one; three, two; one, three and one, six previous attacks of the disease. In eight per cent. of Ander's series, a history of other attacks was given.

I have no doubt but that Doctor Amoss will refer to the fact that in some cases the streptococcus almost immediately shows a tendency to invade subcutaneous tissues, and produce a cellulitis, which develops with so great celerity that ofttimes massive death of tissue takes place, and in which but little disposition to intracutaneous extension is seen. Why this is so appears to be difficult of explanation, unless a variance of strain is explanatory. The rarity of invasion of the blood stream, as well as the infrequency of extension of the infection to the postorbital tissues, with thrombosis of the cavernous sinus, are happy prognostic truths, from the patient's standpoint.

I apprehend that the location of the frontal and angular veins beneath the skin, even though these vessels communicate directly with the intracranial structures, favors the patient's escape from these unfortunate complications.

Fehleisen doubted the possibility of reconciling the presence of pus with true erysipelas. This belief has received much modification in the past four decades. The production of pus, when the subcutaneous tissues are invaded, is a common complication of the condition.

I have referred to the manner of extension of the disease within the body. Does erysipelas deserve to be looked upon as a disease which is likely to endanger the lives of others in our general hospitals, and should it, therefore, be relegated to the wards of the municipal contagious hospital? Of the punishment meted out to hospital ambulance physicians in Philadelphia for bringing in a case of erysipelas, being shot at sunrise is the most merciful and most painless. Now no one has a greater medical respect for the streptococcus than I, but to make a fetish of avoiding this organ-

ism when it happens to be in the skin, and of accepting it as a suitable occupant of a medical or surgical ward, when it is below the skin, seems not good hospital judgment. If good medical asepsis is practiced, I see no reason—certainly if a separate ward is provided—why the general hospital should not open its doors to patients suffering with erysipelas.

I have referred casually to the possibility of isolating a specific streptococci strain which is capable of producing the dermatitis of erysipelas. To prove the existence of such a strain will be to clear up many of the clinical and therapeutic riddles which now are attached to this disease.

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PRESENT DAY GYNECOLOGY AT BELLEVUE HOSPITAL

FREDERICK C. HOLDEN

(Delivered before the New York Academy of Medicine, March 4, 1926)

A SURVEY OF THE SERVICE FOR THE YEARS 1920–1925, INCLUSIVE

(*Abstract*)

There were 11,459 admissions to the wards; 2,500 of these patients were operated upon, an operative incidence of 21.82 per cent. With a service so large there is always a tendency to become routine. Careful history-taking and thorough preoperative study were the principal factors which made for such low operative incidence.

The subjects considered were: abortion, sepsis (post abortal and post partum), salpingitis (acute and chronic), ectopic pregnancy, cervix uteri, fibroids and carcinoma.

Prognosis influenced by blood picture, organism, location and extent of pathology and general condition of the patient.

Acute salpingitis—774 cases, practically all of whom were discharged symptom free without operation.

Salpingitis, chronic—1235 cases of whom 573 were operated.

Ectopic—189 cases, nine deaths; approximate diagnostic error 16 per cent.

Cervix uteri—office cautery treatment has greatly decreased the necessity for operation.

Fibroids—many fibroids symptomless and require no treatment. 346 operated. Supracervical hysterectomy preferred to radium or X-ray in most instances.

Death rate, operative, 3.04 per cent.; non-operative, 2.25 per cent.

Infected wounds in all types of cases 6.51 per cent.

What are some of the duties of the director of such a service? Primarily, of course, to the patients, to see that each one receives the best possible treatment, and to emphasize what I have said before, this can be done only by a very thorough study of each individual case. Next, there is responsibility to our associates, to see that they are developed along lines which make better surgeons. One of the best ways of accomplishing this is to give them responsibilities under supervision. The interns are encouraged to think, and we have a system which requires that they either read or write a history before examining a patient; they are then required to describe in writing the findings and the diagnosis, and give suggestions for treatment. In the matter of the under-graduate body, our feeling is that we have a responsibility to the public, and can best fulfil that responsibility by sending our students out from the medical school prepared to do as little damage as possible. Therefore, the 104 hours which are at our disposal are employed by methods which make for diagnosis. Contrary to the custom of many teachers, our under-graduate students spend their time in the wards in direct contact with the patients, taking histories, making examinations, and having the pathology, symptoms, and treatments discussed with them by one of the teaching staff. We feel that under-graduate life is not the time to teach operating—surely this would be getting the "cart before the horse."

Conclusions:—

1. We believe that gynecological operations are often performed without sufficient study. Our operative incidence of 21.82 was made possible by a careful survey of each case.

2. The uterine curet is too frequently and indiscriminately used. In a series of 3,132 cases of abortion we curetted only 127.

3. The outstanding points in the treatment of sepsis are—individualization, nursing, gastro-intestinal hygiene, blood transfusions.

4. Practically all the cases of acute salpingitis (774) left the hospital symptom-free, without operation.

5. When operation for salpingitis is necessary, it is never undertaken until there has been a normal temperature for three weeks, and a normal leukocyte count.

6. A carefully taken history is the greatest aid to accuracy in ectopic diagnosis.

7. The cautery treatment has greatly diminished the necessity for operations on the cervix-uteri.

8. Supracervical hysterectomy is our preference in symptom-producing fibroid cases, though X-ray has a definite but limited field.

9. Radium and X-ray have superseded the knife in the treatment of carcinoma.

10. The chief's constant aim is to direct the service for the greatest good to the patients, associates, interns and students.

PRURITUS—CAUSES, EFFECTS AND TREATMENT

S. Pollitzer

(Delivered before the New York Academy of Medicine, January 21, 1926)

Résumé

Whether we employ the Latin term pruritus or the common English word, itching is merely a symptom and not a disease. This symptom regularly accompanies a number of skin diseases, but we limit the term pruritus to that disturbance in cutaneous sensation in which there is apparently no preceding disease of the skin. We speak then of essential pruritus, which may be

defined as a chronic intermittent sensory neurosis dependent on an abnormal excitation of tactile sense organs apparently not related to any preceding organic change in the skin.

The term thus employed may be merely a cloak to our ignorance. It seems more probable that there are in every case of pruritus, physical or chemical changes in the skin too subtle for our gross methods of examination, except possibly in those rather rare cases in which a circumscribed pruritus is due to a central lesion, to a psychic impression or to a reflex or misplaced reference of sensory irritation in an internal organ. Even in these cases it is possible that the sensory disturbance may depend on motor impulses affecting the circulation or the cutaneous hair-muscles in the affected area. These cases would thus be brought into the larger group of cases in which itching is provoked by mechanical irritation.

Mechanical irritation is a well-known cause of itching. When the skin is gently stroked as with a feather the sensation of tickling after a while passes over into one of itching. This experiment offers an explanation of the itching from a variety of external irritants such as woolen clothing; it affords a clue to the itching from intra-cutaneous irritants such as the contraction of the hair-muscles from sudden exposure to cold or vaso-motor disturbances due to any cause. On the other hand, only very few people itch on removing their clothing, not even when they suffer from "goose-skin." We are forced to the conclusion that there is another factor in the cause of itching, a factor which produces a hyperesthesia of the nerve-ends under which they respond with itching to the various physical stimuli referred to.

In a large group of cases of chronic pruritus we commonly find toxic substances in the blood; *e.g.*, in albuminuria, diabetes, icterus, cancer, leucaemias, chronic intestinal disorders, etc. There is undoubtedly a host of lesser disorders which result in chemical changes of the blood which may be the cause of the cutaneous sensitization. In most itching skin diseases there are local toxic conditions, the result of local infection. In some, like lichen planus, it is suggested that the dense infiltration at the hair-follicles serves as the source of a continual mechanical irritation which provokes itching. The itching of a wound healing by secondary intention under a crust may similarly be explained

as the result of abnormal conditions of pressure and tension caused by the relatively inelastic scab.

The degenerative changes in the skin in old age do not of themselves cause itching. The term senile pruritus is inappropriate. Old age is especially prone to degenerative changes in important organs, kidneys, liver, endocrine glands, etc., and it is the consequences of these visceral disorders, producing chemical changes in the blood, to which the pruritus should be ascribed. Many of the cases of itching described as reflex from disorders of internal organs, uterus, kidneys, bladder, etc., are more probably of toxic origin; but we must admit the occurrence of a localized pruritus due to misplaced reference to the skin of sensory irritation derived from the bladder, kidneys, etc. The unquestionable clinic evidence of such transference of sensations of pain, heat, pressure, etc., due to vesical, prostatic or renal disease to certain definite areas in the skin is sufficient reason for accepting the occurrence of a localized pruritus of similar reflex origin.

Itching at the anus, the perineum and the pudenda is the most common form of circumscribed pruritus. It is in these regions that the opportunities for local infection are most abundant. Friction or scratching following a minor irritation from any cause is almost inevitably followed by local infection. The condition then becomes one of eczema; an uncomplicated pruritus in these regions is never seen. In children pruritus is always associated with urticaria and often prurigo. One of the most frequent consequences of local irritation is the development of patches of hypertrophied skin which constitutes the lichen simplex chronicus of Vidal. The scratching causes hyperaemia and exudation which in turn leads to more itching and more scratching—a vicious circle. The general effects of pruritus are due to the recurrent exhausting nerve storms and the loss of sleep with consequent anaemia, etc.

In the treatment of general pruritus the most thorough clinical examination must be made to discover the cause of the toxic disturbance in the blood. Liver, kidneys, the alimentary tract and the endocrine glands, especially the ovaries, should receive careful attention. The chemistry of the alimentary canal may be favorably influenced by colonic irrigation and implantation or by ingestion of cultures of B. acidophilus in large quantities. A

radical change of diet is sometimes of benefit. The mental attitude of the patient toward his itching is of importance; he must be trained. Locally, all sources of irritation must be guarded against. Anti-pruritic lotions and salves are of great help. X-rays and especially ultra-violet often affords prompt relief lasting several days. The secondary effects of itching, eczematization and lichenization, must be treated by appropriate remedies. Sedatives are of little value; narcotics should be absolutely interdicted.

While many cases of general pruritus prove absolutely refractory, many can be cured and all may obtain at least some measure of relief.

Abstracts of Papers Delivered at the Stated Meeting of March 18, 1926

FRACTURES IN THE AGED

William Darrach

It is important to treat the patient primarily and his fracture secondarily.

After the fifty-fifth year fractures are more common than in earlier age groups; bones are more brittle; X-ray examinations show thinner cortical layer and less lime; muscular system is a less efficient protective agency. Defective vision, slower reaction time, imperfect sense of balance contribute to higher incidence. Injury to soft parts apt to be less than in younger patients. Ecchymosis far greater and lasts longer. Edematous swelling less marked but harder to dissipate. Reduction of displacement generally easier, although comminution is more frequent. Adjacent joints are more likely to become involved. Muscles and tendons also affected more quickly.

Important to remember the double-edged character of therapeutic measures in fractures. Each detail of treatment has its harmful as well as beneficial results.

Local rest, whether partial, intermittent or complete, must be used with caution. General rest, when indicated, must be sparingly used. More careful use of anaesthetics.

In reduction we must be even more gentle than usual. The greatest care should be observed in the application of splints. Old tissues are much more susceptible to pressure.

In handling fractures decision as to details is influenced largely by the use to which the individual commonly puts the affected part. In the aged we must realize that it is not as essential to have either the extreme range of motion or the full return of power. Their lives no longer demand them. Deformity is not as important to them. They need a moderate amount of power, range and dexterity, but they can well afford to sacrifice the extremes of all three to be sure of this moderate amount without persistent pain. All these factors must be considered as decision is made as to how strenuously to attempt reduction of the displacement of the fragments and whether an anaesthetic shall be used or not.

The use of splints is less necessary than with younger patients. The retentive bandage is to be used only as long as and when really necessary. More frequent inspection is indicated, and with this meticulous care of the skin. In many cases splints can be entirely omitted. Above all we must try to avoid or overcome the stiffening of the joints and the atrophy of the muscles. Gentle massage and gentle movements are indicated as early as possible.

The prognosis in fractures in the aged is not as good as in younger patients, either for life or for the function of the part. The prognosis depends as much on the condition of the individual and the treatment he receives as on the details of the fracture. The outlook for life in the more severe types, such as the neck of the femur, is tremendously improved since methods of treatment have beeen developed which allow the patient to be moved about in bed.

(1) Treat the patient even more than the fracture.
(2) Strive for function rather than anatomical perfection.
(3) Avoid pressure.
(4) Be gentle in reduction, in the use of appliances and in massage and movements.
(5) Again—be gentle!

DIFFICULTIES IN THE REDUCTION OF FRACTURES OF THE LONG BONES AND THE PRINCIPLES OF TREATMENT

JOSEPH A. BLAKE

1. Traction is the best agent for reducing and maintaining reduction of fractures of the long bones.
2. The main difficulties encountered in the reduction of fractures are three in number:—(1) interlocking of the fragments; (2) interposition of soft parts; and (3) *delay*. Of these, interposition of soft parts sufficient to seriously interfere with union calls for an open operation; interlocking can usually be overcome by traction; while delay, although the most important, is generally overlooked.
3. Delay means swelling which interferes with reduction to the extent sometimes of making it impossible.
4. Early reduction prevents swelling.
5. Reduction by traction after swelling has taken place requires a greater and more prolonged tractive effort, and usually entails the employment of skeletal traction.

WHEN IS THE OPERATIVE TREATMENT JUSTIFIED IN THE TREATMENT OF FRACTURES OF THE LONG BONES?

DR. CHARLES L. SCUDDER

The operative treatment of fractures traced in its development. New conceptions of the importance of fractures. Dependent on industrial developments, conceptions of the relations of the limbs, conceptions of bone, conceptions of process of repair. General surgical development. What is meant by non-operative treatment? What is meant by operative treatment? Conditions to be considered in formulating an opinion as to the applicability of operative treatment to fractures of the long bones. Fractures in children and fractures in adults likely to need operative treatment.

Qualifications stated of a surgeon doing operative work in fractures.

THE CAUSE AND THE TREATMENT OF NON UNION

JAMES MORLEY HITZROT

Non union is the result of some interference with the normal sequence of events in the repair process in bone. Under normal conditions a fracture is followed by an exudate rich in fibrin, which coagulates and which is infiltrated by a rich cellular exudate from the periosteum and the endosteum. These granulation tissue masses form about the end of the bone with great rapidity and rapidly fuse with each other. Coincident with the above the cortical bone ends become rarified (osteoporosis of the bone ends).

Calcification of the granulation tissue occurs both on the periosteal as well as the endosteal side of the fracture and this calcification and the osteoporosis proceed until the newly formed bone and the cortex are approximately of the same density, when a readjustment takes place and the newly formed bone and the eroded cortex become denser and new bone is laid down in concentric lamellae parallel to the lamellae in the pre-existing bone. A different length of time can be assigned to these various stages because of the variation in the size and density of the bone to be repaired and the variation in the amount of repair substance needed.

Adhesion of the periosteum, the interposition of muscle or of a bone fragment across one end of the fracture will prevent coalescence of the granulation tissue masses or their formation. A too wide separation of the fragment or a loss of bone substance may require too great an amount of newly formed tissue to bridge the gap and the sequence of events may be so interfered with that calcification at the bone ends causes plugging of the medullary canal and sclerosis of the cortical bone at the line of fracture and the distal granulations become anemic and cannot proceed to proper calcifications. If to the above is added more or less constant motion of the fragments the terminal granulations tend to form cartilage and a rather thick viscid liquid forms with the production of a pseudo arthrosis.

Infection at the site of fracture also may alter the sequence of tissue changes necessary for the repair process by causing the granulation tissue masses to break down or by preventing a

proper osteoporosis of the bone ends by causing necrosis of the bone.

A large fragment of bone deprived of its circulation may also divert a too great number of osteogenic cells to itself and permit osteosclerosis of the bone ends to occur at a period too early for the proper coalescence of the granulation masses, and in the process of readjustment these eburnated bone ends are left ununited, or in the neck of the femur the head fragment with a poor circulation remains unaltered while the osteoporosis of the shaft fragment enlarges the gap between the bones causing non union.

As a result of treatment the normal sequence of events may also be interfered with: For example, too frequent manipulations of the bones, especially late, may cause interference with the interlacing of the granulation tissue and leave a gap between the masses. In a somewhat similar manner an operation may disturb this normal sequence of bone repair and produce masses of new bone which do not unite, and which undergo retrogressive changes into dense bone before the two fragments have become joined together.

In the treatment of non union it is necessary to reproduce a condition somewhat analogous to that required for a normal repair. That is, the natural process must be stimulated so that granulation tissue and osteoporosis can occur and can fuse the two bone ends together. Many methods have been devised for this purpose such as reshaping the bone ends, by various doweling and step operations, by drilling the bone and by fixation with various materials. The best result is procured by some form of bone graft preferably autogenous which opens up the sclerotic bone ends and also prevents motion at the site of fracture.

The paper was illustrated by a number of lantern slides.

PROCEEDINGS OF ACADEMY MEETINGS, 1926

Stated Meetings

March

Thursday Evening, March 4th.

Program presented in cooperation with the Section of Obstetrics and Gynecology.

ORDER

I. Executive Session.

II. Report of a Case.

An unusual intraligamentous myoma, Henry D. Furniss.

III. Papers of the Evening.

a. Birth injuries. Lantern demonstration, William E. Caldwell, W. C. Johnson (by invitation).

b. Present day gynecology at Bellevue Hospital, Frederick C. Holden.

An abstract of the paper by Dr. Holden is published in this number of the Bulletin.

Thursday Evening, March 18th.

Program presented in cooperation with the Section of Surgery.

ORDER

I. Executive Session.

II. Papers of the Evening.

a. Fractures in the aged, their prognosis and treatment, William Darrach.

b. Difficulties in the reduction of fractures in the long bones and the principles of treatment, Joseph A. Blake.

c. When is operative treatment justified in the treatment of fractures of the long bones? Charles L. Scudder (by invitation).

d. The cause and treatment of non-union, James M. Hitzrot.

Abstracts of the papers presented at this meeting are published in this number of the Bulletin.

Section Meetings

March

Section of Dermatology and Syphilis

Tuesday Evening, March 2nd.

ORDER

I. Presentation of Patients.

a. From the Mount Sinai Hospital. Service of Dr. Hermann Goldenberg.

Miscellaneous cases, Louis Chargin, Lewis O. Goldberger, Walter J. Highman, Oscar L. Levin, Isadore Rosen, Max Scheer, Charles Wolf.

b. From the Bellevue Hospital Syphilis Dispensary. Service of Dr. Mihran B. Parounagian.

Miscellaneous cases—Mihran B. Parounagian, Frederic S. Mason.

II. Discussion.

III. Executive Session.

Abstracts of this section are published in full in the Archives of Dermatology and Syphilology.

SECTION OF NEUROLOGY AND PSYCHIATRY

Tuesday Evening, March 9th.

ORDER

I. Case Presentation.

An osteoma of the spinal cord with pathological and clinical discussion, Irving H. Pardee.

II. Papers of the Evening.

a. Apraxia, Joseph Feser (by invitation).

Discussion, J. Ramsay Hunt, Michael Osnato.

b. The part of conduct disorders in the concept of constitutional psychopathic inferiority, James H. Huddleson.

Discussion, J. J. Toomey (by invitation).

c. Pneumoencephalomyelography, with special reference to the relative safety of the procedure by the aid of the simultaneous displacement apparatus, F. Liberson (by invitation).

Discussion, Joseph E. J. King, Byron Stookey.

Abstracts of the papers presented at this meeting are published in this number of the Bulletin.

SECTION OF PEDIATRICS

Thursday Evening, March 11th.

ORDER

I. Reading of the Minutes.

II. Examination of the infant's throat, with the demonstration of a special illuminated tongue depressor, Henry Dwight Chapin.

III. Papers of the Evening.

a. Late results in empyema thoracis by the author's method, with the presentation of cases, A. L. Soresi.

Discussion, John V. Bohrer, Maximilian Lewson.

b. The thymus considered with reference to the advisability of routine preoperative x-ray, Gaylord W. Graves, C. Winfield Perkins.

Discussion, Rowland G. Freeman, A. J. Quimby.

c. The influence of the routine administration of cod liver oil in the prevention of rickets in young infants, May G. Wilson.

Discussion, Alfred F. Hess, Oscar M. Schloss.

Abstracts of the papers presented at this meeting are published in this number of the Bulletin.

Section of Otology

Friday Evening, March 12th.

ORDER

I. Reading of the Minutes.

II. Presentation of Slides.

Presentation of x-ray slides of the mastoid, George S. Dixon.

III. Paper of the Evening.

X-ray examination as an aid to mastoid surgery, Frederick Whiting.

IV. Discussion, George S. Dixon, Frederick M. Law.

Summary of the paper of the evening is published in this number of the Bulletin.

Section of Ophthalmology

Monday Evening, March 15th.

ORDER

I. Reading of the Minutes.

II. Papers of the Evening.

a. A stereoscope for tangent screen examinations, A. Milton Goldman (by invitation).

b. A simplified scotometer with suggestions for field taking, A. H. Thomasson (by invitation).

Discussion, Alexander Duane.

c. Discussion of scotoma caused by the retinal blood vessels, John N. Evans (by invitation).

Discussion, Ralph I. Lloyd (by invitation).

Section of Medicine

Tuesday Evening, March 16th.

ORDER

Program from the Medical Department of the Presbyterian Hospital.

Papers of the Evening.

a. The occurrence of throat infections with streptococcus scarlatinae without rash, Franklin A. Stevens (by invitation), A. R. Dochez.

Discussion, Oscar M. Schloss.

b. Roentgen-ray therapy in rheumatic heart disease, Robert L. Levy, Ross Golden.

Discussion, Homer F. Swift, Alfred E. Cohn.

c. Bacterial flora of the nose and throat in health and disease, Gerald S. Shibley (by invitation), Franklin M. Hanger (by invitation), A. R. Dochez.

Discussion, Frederick L. Gates.

d. The therapeutic use of oxygen. A new oxygen chamber, Alvan Barach (by invitation).

Discussion, W. C. Stadie (by invitation).

Abstract of the third paper of the evening is published in this number of the Bulletin.

Section of Genito-Urinary Surgery

Wednesday Evening, March 17th.

ORDER

I. Reading of the Minutes.

II. Papers of the Evening.

a. The recognition of uric acid stones in the kidney and uric acid showers, Edwin Beer.

b. The practical significance of structural changes in the kidney, James E. Davis, Detroit, (by invitation).

III. General Discussion.

IV. Executive Session.

Section of Orthopedic Surgery

Friday Evening, March 19th.

ORDER

I. Reading of the Minutes.

II. Presentation of Cases, Case Reports, and New Instruments (from the Staff of the Fordham Hospital).

a. 1. Fracture and Dislocation of C IV and C V with paralysis of all extremities. Marked improvement.

2. Dislocation of wrist and semilunar bone. Good result, Alexander Nicoll (by invitation).

b. Fracture of femur, Edward R. Cunniffe (by invitation).

c. 1. Fracture and dislocation of C III and C IV with hemiplegia. Complete recovery,

2. Coxa plana, showing interesting x-ray findings.

3. Central fracture of acetabulum with luxation of head of femur. Good result, Samuel W. Boorstein.

III. Paper of the Evening. Sciatica, M. N. Smith-Petersen (by invitation).

IV. Discussion.

Section of Laryngology and Rhinology

Wednesday Evening, March 24th.

ORDER

I. Reading of the Minutes.

II. Presentation of Cases.

An unusual case of rib transplant, Francis W. White.

III. Paper of the Evening.
The present status of plastic surgery of the face in France. Leon Dufourmentel, Laryngologist to the Pereire Hospital, Paris; Professor of Facial Surgery in the Dental School of France (by invitation).
Lantern slides.

IV. General Discussion.
V. Executive Session.

Abstract of the paper of the evening is published in this number of the Bulletin.

SECTION OF HISTORICAL AND CULTURAL MEDICINE
Thursday Evening, March 25th.

ORDER

I. Reading of the Minutes.
II. Papers of the Evening.
a. The temples of Aesculapius and the therapeutics of the early Greeks, with lantern slides, Charles L. Dana.
b. History of phototherapy, with lantern slides and moving pictures, Herman Goodman.
III. Discussion.

Abstract of the second paper of the evening is published in this number of the Bulletin.

Abstracts of Papers Presented before the Section of Neurology and Psychiatry, March 9, 1926

(a) THE PART OF CONDUCT DISORDERS IN THE CONCEPT OF CONSTITUTIONAL PSYCHOPATHIC INFERIORITY

JAMES H. HUDDLESON

Disorders of conduct are becoming relatively more prominent in the symptomatology of constitutional psychopathic inferiority

as at present understood. Their prophylaxis and treatment, like those of any other symptoms, constitute a neuropsychiatric problem.

Restraint or other legal penalty is itself a form of suggestion or counter-suggestion. Though other agencies are authorized to assess and execute such penalties, neuropsychiatrists can exercise one of their medical functions, viz., promoting public health, by considering the use, abuse, or neglect of these psychotherapeutic means in the same category with other forms of suggestion and with medicinal or surgical treatment.

(b) APRAXIA

JOSEPH FESER

Cortical aphasia and apraxia cannot be described properly in terms of either strictly motor or sensory disorders.

The solution of the present tangle, with reference especially to apraxia is shown to be possible through the establishment and the adoption of a new concept, the concept of the imaginational movement.

The spatial imaginational movements are processes taking place in the brain, in certain definite regions of the cortex and constitute a necessary element in every deliberate perception or execution of an act, dealing with spatial arrangement.

The existence and effect of these imaginational movements is shown by case records.

We have then the phenomenon of apraxia, when, and only when in mind some spatial arrangement previous to a locomotion has to be made, that is to say, when mental design, plan, scheme, project is necessary.

Acts not requiring plan, scheme, design, project therefore do not show apraxia.

The importance of apraxia lies in that this curious disorder of brain-biology makes us acquainted with a special class of brain-processes: the spatial imaginational movements or immings.

(c) PNEUMOENCEPHALOMYELOGRAPHY

F. Liberson

Clinical methods alone are insufficient for exact diagnosis and localization of all cerebro-spinal affections. Unaided roentgenography of the skull and spine has a limited application in affections of the brain and cord.

A short review of the diagnostic aid obtained from the various methods of air injection and roentgenography of the ventricular and subarachnoid systems, with comparison of their relative safety. Demonstration of a special apparatus for the avoidance of the varying of the intracranial and intraspinal pressures during the withdrawing of the cerebral spinal fluid and the replacement of same by air. The relative safety of the procedure of air displacement of the C.S. fluid with this apparatus is compared with the other methods. The application of air injection is extended to other than suspected brain and cord tumors. Reference is made to the appearance of the air insufflated ventricles and subarachnoid spaces in cases of paresis, also to the appearance of the subarachnoid spaces in case of adhesions of meninges.

The aim of the paper is to emphasize the relative safety of the replacement of the C.S. fluid by air by the aid of the simultaneous displacement apparatus in order to broaden the application and usefulness of the air injection in cerebro-spinal affections.

Abstracts of Papers Presented before the Section of Pediatrics, March 11, 1926

(a) LATE RESULTS IN EMPYEMA THORACIS IN CHILDREN OPERATED BY THE AUTHOR'S METHOD

A. L. Soresi

The author states that treatment of empyema in order to be rational must be based on two fundamental principles: one of physio-physiological, the other of physio-pathological nature.

The former is: the pleural space occupied by the fluid must be filled again by the lung or in some manner obliterated. Consequently, in order to obtain a rapid cure the method of treatment must reestablish and maintain the negative pressure of the pleural cavity, while the pus is evacuated. On the fulfillment of these desiderata is based the actual treatment devised by the author.

The physio-pathological principle is: the fluid present in the plerual cavity always in all cases represents a means of defense of the organism. This defense must not be hampered until the defense itself is no longer required. Consequently operation should not be done until the process which caused the accumulation of fluid is over. Exceptionally, fluid should be removed in quantity sufficient to make the patient comfortable, without favoring expansion of the lung or for diagnostic purposes. A careful study of each individual case is necessary; a rational post-operative treatment is also indispensable.

All operations should be done under local anaesthesia. The author's operative procedure is based on the use of a special bivalve metal cannula provided with a rubber valve and contrivance to carry the pus into a bottle. This cannula allows a perfect drainage while negative pressure of the chest is preserved. The original dressing is not changed until the cannula is removed. The patient is not disturbed or made uncomfortable in any manner, on the contrary often he is allowed out of bed the day following operation.

The cannula is removed around the eighth day after operation and the small pleural space still open is filled with a paste made up of cocoa butter 40, lanoline 40, almond oil 20, iodine 25, napthol-camphor aa 3, creosote 6, guaiacol 8. *No drains should ever be used.*

The period of treatment is reduced to an average of 10 to 12 days. No complication or death was observed in 18 cases in children and over 200 in adults.

The method is safe, clean, economical and may be applied by any physician under the most unfortunate circumstances. It removes all the bad features and complications inherent to the older methods.

Recurrence is exceedingly rare—3 cases out of over 200 treated.

(b) THE THYMUS GLAND CONSIDERED WITH REFERENCE TO THE ADVISABILITY OF ROUTINE PREOPERATIVE X-RAY.

GAYLORD W. GRAVES AND CHARLES WINFIELD PERKINS

Notwithstanding the attention which the thymus gland has received during a period of over 200 years and the many facts established pertaining to its embryology, anatomy, supposed physiologic role, and influence in the causation of sudden death, there is still little unanimity of opinion respecting its function. Of the many theories to explain thymic death, apart from the early theory of mechanical pressure (to which may be due tracheostenosis), none has been uniformly accepted. With the evidence at hand, we are warranted in exercising particular caution before operating upon a child whose thymic shadow is abnormally large as determined by preliminary x-ray.

During the past three summers, x-ray examination has been conducted routinely prior to operation in the tonsil and adenoid service of Seaside Hospital as a measure of safety. Of 600 x-rays of children between 1 and 7 years of age, 25 showed a shadow considered to indicate definite thymic enlargement; and an equal number, suggestive x-ray evidence of thymic enlargement.

In view of these findings, combined with those of other observers, until there is a more positive method of diagnosing potential tracheostenosis and status lymphaticus, routine preoperative chest x-ray in children must be considered a desirable safeguard and should be instituted where possible as a regular procedure.

(c) STUDIES OF THE PREVENTION OF RICKETS

MAY G. WILSON

THE INFLUENCE OF THE ROUTINE ADMINISTRATION OF COD-LIVER OIL IN THE PREVENTION OF RICKETS IN YOUNG INFANTS

It is a common experience in outpatient and private practice to observe rickets develop in infants who are receiving cod-liver oil. The potency and dosage of the cod-liver oil given is

as a rule questioned. However, we do see infants with rickets who have received, over a prolonged period, the usual amounts of a well recommended cod-liver oil.

In view of the universal routine administration of cod-liver oil for the prevention of rickets it seemed timely to investigate the subject. Such an investigation was undertaken in the out-patient department of the New York Nursery and Child's Hospital. It extended over a period of two years (1923–1925) and included observations on 210 infants. Of this number, 132 received cod-liver oil. The remaining 78 who did not receive cod-liver oil were included as control cases.

A summary of the results of babies born in the summer showed that for infants receiving cod-liver oil, 91 per cent. developed two or more rachitic signs. A further analysis of the age period at which the evidence of rickets was first observed, both clinically and by Roentgen ray, showed that at three months of age, 20 per cent. showed clinical evidence of rickets, and 44 per cent. roentgenographic evidence. By the fourth month, clinical rickets was observed in 38 per cent. and roentgenographic evidence of rickets in 82 per cent. The development of rickets in these infants despite the administration of a potent cod-liver oil in the usual amounts is to be noted.

A summary of the results obtained for babies born in the winter showed that of the infants receiving cod-liver oil, 68 per cent. developed two or more rachitic signs. For infants not receiving cod-liver oil, 76 per cent. developed two or more rachitic signs. Roentgenographic evidence of rickets was observed in 91 per cent. of the infants receiving cod-liver oil and in 98 per cent. of the control cases. Comparing the degree of clinical rickets observed, it may be seen that no case of severe rickets was observed in either group, 42 per cent. developed moderate rickets, 25 per cent. mild rickets comparable to the degree of rickets observed for infants not receiving cod-liver oil; namely, 40 per cent. developed moderate rickets and 30 per cent mild. It is evident then that the majority of these infants developed a mild or moderate degree of rickets, there being little striking difference between those infants receiving and those not receiving cod-liver oil.

It is also of interest to note that at the completion of the observations in May, 1925, the ages of these infants being between

five and nine months, the majority were apparently healthy, thriving babies. In fact, 83 per cent. of the babies receiving cod-liver oil and 80 per cent. of the controls more than doubled their weight in five months. Except for a period, particularly during February and March, when the active symptoms of rickets were observed, the general condition and progress of the majority of the infants was good.

In comparing the age periods at which the first evidence of rickets was observed, both clinically and by Roentgen ray, it was found that signs of clinical rickets developed at three months of age in 52 per cent., at four months 66 per cent., while roentgenographic evidence was found at three months in 63 per cent. and at four months in 77 per cent. of infants receiving cod-liver oil. Likewise in the control group, signs of rickets developed at three months in 56 per cent., at four months in 89 per cent. and roentgenographic evidence at three months in 73 per cent. and at four months in 93 per cent.

The Significance of the Concentration of Cal. & Inorg. P. in the Serum:

We have determined the concentrations of calcium and inorganic phosphorus in the serum of some of the infants showing clinical or roentgenographic evidence of early rickets. The determinations were made in March, all the infants being under five months of age. In 17 rachitic infants, the concentration of the calcium in 11 receiving cod-liver oil was 11.4 Mg. per 100 c.c. of serum and for inorganic phosphorus 6 mg. giving a product of 68. In six infants not receiving cod-liver oil, the calcium averaged 10.8 mg. per 100 c.c. of serum and the inorganic phosphorus 6 mg. giving a product of 64.

The development of rickets in the winter born babies where preventive cod-liver oil therapy was instituted in the first month of life under special supervision is not easily explained, particularly in comparing the findings with those in the control group. A consideration of the age period when the greatest incidence of rickets was observed; namely, in the fourth and fifth months, suggests that the findings described may be related to the rate of growth, since the rate of growth at this age

period is the most rapid in infancy. The rapid growth of the majority of the infants and their general excellent condition may therefore bear some relation to the findings here observed. If this disease here described is rickets, it would seem to be universal in young infants.

Conclusions

The nature of the relation of cod-liver therapy to the development of rickets as observed in these studies would seem to be one of control rather than of prevention.

Summary of Paper Presented before the Section of Otology, March 12, 1926

X-RAY EXAMINATION AS AN AID TO MASTOID SURGERY

FREDERICK WHITING

This paper emphasized the importance of the recognition of mastoid types as a controlling factor in early or delayed operation in the so-called border line or obscure case.

It also dwelled upon the necessity for the use of stereoscopic radiography in the study of the plates in cases of acute suppurative osteomyelitis of the mastoid of the infantile or non-cellular type.

An analysis of Wittmaack's theory in explanation of the wide diversity in the developmental pneumatization of the mastoid bone formed an essential feature of the paper.

Abstract of Paper Presented before the Section of Medicine, March 16, 1926

BACTERIAL FLORA OF NOSE AND THROAT IN HEALTH AND UPPER RESPIRATORY INFECTION

G. S. Shibley, F. M. Hanger, and A. R. Dochez

In searching for the causative agent in respiratory disease, the problem is seriously complicated by the fact that the nose and throat normally harbor a variety of bacteria, some constantly present and others more or less transient. Correct interpretation, therefore, of the importance of organisms found in respiratory disease is dependent upon comprehensive familiarity with the bacterial flora in health. In the present study, a preliminary in an investigation of the common cold being undertaken by us, observations have been made of the bacterial flora of the nose and throat in a group of normals over a comparatively long period, and qualitative and quantitative changes occurring in the course of upper respiratory infections appearing in the group have been noted.

Thirteen individuals were studied for periods ranging from five to nine months. Aerobic and anaerobic cultures were made from the nose and throat infections weekly in health, and daily in the course of colds and throat infections. All organisms present were carefully identified and their prominence noted.

Our results may be summarized briefly as follows: The normal basic nasal flora includes *staphylococcus albus,* diphtheroids, and for certain individuals *staphylococcus aureus* and *citreus;* occasional transients are gram-negative cocci and non-hemolytic streptococci. The normal basic throat flora includes gram-negative cocci, non-hemolytic streptococci, and for certain individuals large gram-positive cocci, *B. pfeifferi,* both non-hemolytic and hemolytic, and diphtheroids; transients are *staphylococcus albus, staphylococcus aureus,* hemolytic streptococci, *staphylococcus citreus* and pneumococci.

Certain of these organisms have been assumed to play pathogenic roles. Such so-called potential pathogens are hemolytic streptococci, *staphylococcus aureus,* pneumococci, and *B. pfeifferi.* In the nose, hemolytic streptococci were found once without associated untoward symptoms. In the throat, hemolytic streptococci had a high incidence in four cases, of whom two had no associated symptoms and two had more or less continuous subacute inflammation of their throats. *Staphylococcus aureus* was high in one case and prominent in her colds. Pneumococci were associated with a mild sore throat in one case and no symptoms in another. High incidence of *B. pfeifferi,* both hemolytic and non-hemolytic, was not accompanied by any apparent increase in respiratory infection.

In the course of colds a number of changes from the normal were noted. In the nose there was a tendency toward scantiness of growth in the early cultures and the basic flora was decreased; in the throat the usual prominence of gram-negative cocci was less marked and there was a moderate increase in the prominence of non-hemolytic streptococci. In both nose and throat there was an increase in the incidence of the so-called potential pathogens. In the nose hemolytic streptococci and *B. pfeifferi* showed increases which were due entirely to late secondary spread. In the throat, *staphylococcus aureus,* hemolytic streptococci, and *B. pfeifferi* went up; in the case of the two former this was due to secondary spread. The increase of *B. pfeifferi* was due mainly to the fact that the organism was widespread, in normals as well, at the time of most of our colds (late winter and spring). It also played an important part as a late secondary invader.

No bacteria were found in the first or in early cultures to which an etiological role could be attributed. The indications are that the so-called pathogens noted above probably play a secondary role in the type of upper respiratory infection under investigation.

Cultures taken during sore throats showed the expected increase, in the throat, of hemolytic streptococci (from 17 per cent. in normals to 56 per cent. during infection).

DISCUSSION BY DR. FREDERICK L. GATES

The admirable presentation of this orderly and illuminating study has left nothing for me to add which is not obvious to all of you. Is it not extraordinary that two contiguous internal surfaces such as the nasal mucosa and the nasal pharynx should continuously support such a different bacterial flora? Since the common source of infection is presumably the inspired air, it seems certain that these two surfaces represent environmental conditions which would account for this difference. This investigation was undertaken as an introduction to a study of common colds. I do not know the hypothesis which stimulated it but it is evident that the authors did not expect to find the etiological agent of common colds among the ordinary aerobic flora of the nose and throat. We must admire the patience and the labor with which they have built so solid and useful a ground work for further studies.

Abstract of Paper Presented before the Section of Laryngology and Rhinology, March 24, 1926

THE PRESENT STATUS OF PLASTIC SURGERY IN FRANCE

LEON DUFOURMENTAL, M.D.

Laryngologist to the Pereire Hospital, Paris; Professor of Facial Surgery in the Dental School of France.

A lecture in English, even on a familiar subject, is for me an unusual experience, but the welcome I have received in the past month encourages me to hope you will excuse my errors. I came to the United States on an official mission from my government, to inquire into the position of plastic surgery here. Incidentally, as on this evening, I have endeavored to make known its status in France.

There are only a few of us in France who practice this surgery; as one of those who do so, I have been chosen for this

mission. After Nelaton and Ombredanne, who made it a part of their work, the first with us to master the subject were Morestin and Sebileau. These conducted, in Paris during the war, the most important services involving the application of plastic surgery to war wounds. Outside of Paris, the chiefs of hospitals devoted to this work were pupils of Sebileau, among them Lemaitre, at Vichy, and myself at Chalons-sur-Marne. After the war, plastic surgery was adapted to meet the civil needs and to deal with deformities arising in peace conditions.

At present, there are two courses in which this specialty is taught: one at the Clinic of the Faculté de Medicin, in French, given by Professor Sebileau and myself; the other, in English at the International Clinic, directed by Drs. Lemaitre, Gillies, Eastman Sheehan, and Ferris Smith.

Grafting is the operation by which plastic surgery is distinguished. Skin, bone, cartilage, fat, etc., can be transplanted by now well established methods. For bone, we use the method of Delaquiere as well as that of Albee. Three special methods of skin transfer deserve special mention: (1) migration from a distant area, the farther end being raised and reinserted higher up until the area of application is reached; (2) bi-pedicile flaps, the skin being left attached at both ends while the flap between is applied; (3) whole-thickness grafts, first devised by Hamilton in America, generalized by Davis and others in America and by Sebileau in France.

Inseparable from transplant procedures are care in stretching the skin and in the avoidance of scars. Scar avoidance is essentially preventive and is partly accomplished through hidden incisions, as on the hairy areas and the wrinkles and natural cavities of the face. In visible areas, it is only by the fine quality of the suture that the scar can be rendered less noticeable. A final resource is found in tatooing, by means of which over-colored lines can be blanched and over-white hues can be colored. The materials are mentioned in an article I published in the Revue Medicale, December 10, 1919.

Skin distension can be safely accomplished by the insertion of bone, cartilage, or fat, where a depression has to be filled. Paraffin must never be used, as paraffinoma is a frequent and

very serious sequel. In other instances, as in operation for wrinkles, resection and suturing will restore the normal tension.

In reconstructive surgery, the first care is to respect the natural processes of healing; often, this alone gives an unexpected and indeed wonderful result. Many large mutilations have been repaired by guiding the natural healing (photographs). If the result is inadequate, it can be supplemented by surgical intervention.

(Lantern slides followed, showing:

1. Grafting half an upper lip.
2. Destruction of a lip by dog-bite and repair by pedicle flap, followed by tattoo. Function restored.
3. Bi-pedicle flap from neck for repair of lip.
4. Same for large orbito-frontal loss.
5. Correction of various nasal deformities:
   (a) Saddlenose corrected by insertion of cartilage through eye-brow incision or intro-nasally. In obtaining the cartilage, use a *small* incision in the thorax and separate the muscle bundles horizontally; do not cut across them.
   (b) Humped and broad nose. Method according to release at the base and press together the parts thus separated.
   (c) Deformities of cartilaginous bridges, hook nose, long nose, pug nose. Correction by suitable excisions from the cartilage and suturing in the new relations.
   (d) Morestini's operation for rhinophyma by a modeling abrasion.
6. Correction of abnormalities in tempero-mandibular articulation:
   (a) Ankylosis. Bone resection by burr on the normal site of the joint. Curved and narrow as possible. Skin around then closed. Permanent mobilization, to prevent recurrence, is obtained by apparatus of Darcissae—two dental processes, from each of which a long hook passes out of the mouth. The hooks are then connected by

a rubber band, stout enough to hold the mouth open; against which is the effort of the patient to close the mouth. Congenital recession of the lower jaw is corrected by cutting the epiphysis and grafting a piece of bone.

(b) Luxation: remedied by resection of the meniscus.

(c) Cracking of the joint: same treatment.

(d) Obliquity and protrusion of jaws: remedied by abrasion of the condyles on the side opposite the obliquity, and on both sides for protrusion, using burr or small biting forceps.

7. Reconstruction of the total loss of lower jaw. Double pedicle flap from scalp, which produces beard. Lip border by mucous membrane flap from upper lip. Jaw replaced by piece of shin bone. Cinema shows this repair in all stages and illustrates restoration of function of lips, tongue, jaw, etc., in an area where destruction was total (patient a German soldier).

8. Distended and elongated breast: Nipple moved to a higher position; surplus tissues eliminated; bulk notably reduced.

Abstract of Paper Presented before the Section of Historical and Cultural Medicine, February 25, 1926

STUDIES IN MEDIAEVAL ANATOMY

ADOLPH ELWYN

With the death of Galen medical science in Europe utterly collapses, and this is especially true of anatomy and physiology. For eleven hundred years there is no record of a single dissection or a single anatomical illustration. The dawn of a new medical science begins towards the end of the twelfth century, with the translation of the works of the Arabian physicians, especially those of Hali Abbas, Rhazes, and Avicenna. The Arabs have rediscovered the Greek scientists and physicians. They have

studied and assimilated the works of Hippocrates, Aristotle and Galen, and have added to Greek science an enormous fund of clinical and therapeutic information. The "Canon of Avicenna" is an Arabianized Galen, a mediaeval system of medicine destined to dominate European medicine for five hundred years.

Arabian influence is first felt in the south of Italy at Salerno and from there spreads to the north, east, and west. But there is no dissection at Salerno and for the inception of anatomy we must look to the north, where at Bologna there was already a faculty of medicine in the middle of the twelfth century. There is some evidence that William of Saliceto, an instructor in surgery, had performed actual dissections about 1275, and it is certain that his colleague, Taddeus of Florence, had actively emphasized the need of direct anatomical study and had stimulated his students to go directly to Greek sources instead of imperfect translations from the Arabic. But the real restoration of anatomy is accomplished by Mondina (1270–1326), who in 1316 published his "Anatome Omnium Humani Corporis Membris," a work frankly acknowledged to be based on several dissections. Mondino became professor of surgery at Bologna in 1306, and was apparently a man of great enthusiasm and striking personality. His anatomy is the first systematic arrangement of Galen's text in the form of a laboratory compendium, in which the organs are described as they present themselves to the dissector. He is more interested to sustain Galen than to trust in his own observations which often must have contradicted Galen's statements. In spite of this defect Mondino's text was used for over two hundred years, and editions published in the middle of the sixteenth century.

The anatomical knowledge of Mondino is derived in the main from imperfect Arabian translations of Galen, and is crude and incomplete. Muscles and nerves are practically disregarded. There is a five-lobed liver with gall-bladder elaborating yellow bile. The sole-shaped spleen forms the black bile and is connected to the stomach by a hollow duct. The stomach is spherical, the heart has three ventricles. The brain has three ventricles. The first of these (sensus communis) is the meeting point of the senses; the second represents imagination; the third

memory. Mental processes are controlled by the red worm (Chorioid plexus) which regulates the opening and closing of the ventricles. No appendix is observed, but pancreas and pancreatic duct are mentioned. The uterus is seven-celled, but he notes the different origin of the two spermatic vessels. The eye has the lens in the center.

The work of Mondino, itself marking an important event in anatomical history, nevertheless, inhibited anatomical progress for two hundred years. It is true that dissection, so rare in 1300, gradually became more wide-spread, and by the middle of the fifteenth century was legalized in most universities. But the introduction of Mondino's authoritative text, which in many schools was followed verbatim, acted as a deterrent for anatomical research. Dissections were made not for study and observation but for demonstrating Mondino's text, the professor reading from a book while a subordinate performed the actual dissection. It seems probable also that the majority of post-mortems were made for medico-legal, rather than for anatomical purposes. The lamentable state of anatomic science is well seen in the anatomical illustration of the fourteenth and fifteenth centuries. The drawings of the skeleton and viscera are crude, schematic and two-dimensional, loaded with errors which must have been apparent from even the most superficial dissections.

The beginnings of modern anatomy culminating with the classic work of Vesalius, are initiated in the early part of the sixteenth century, when Berengario's "Commentaries on the Anatomy of Mondino" was published (1521). Berengario was born in Carpi about 1470, received his doctor's degree in Bologna, and was professor of surgery at that institution for twenty-five years (1502–27). The last years of his life he spent in Rome where he was regarded as "a man of much learning, discussing wonderfully about medicine, connoisseur in the art of drawing and surgeon of highest renown." He became interested in anatomy at an early period, and during his active career claims to have dissected several hundred bodies. He was also, though unjustly, accused of human vivisection. His "Commentaria" is a rich mine of valuable anatomical information and observation. Mondino's text is only an incident often disputed by his own studies

and observations. He relies on the evidence of his own senses, is a tireless dissector and observer, the first academic pioneer of independent research in anatomy. For the first time also (Leonardo excepted) drawings were made directly from the object, his book being the first illustrated text of its kind. His inherent love of the graphic arts was probably an important stimulus in the preparation of the figures.

His anatomical knowledge is far superior to that of Mondino. He denies the rete miabile, but still gives a middle ventricle to the heart; he gives a good description of the thymus gland, vermiform appendix, arytenoid cartilages; describes general form of ventricles, fourth ventricle, chorioid plexus. His figures vary in excellence. Some are very good (surface drawings), others comparatively crude. But taken as a whole, Berengario is the *first* of the *moderns* (Leonardo excepted) stimulating anatomical dissection and initiating anatomical observation, research and drawing from the natural object.

Abstract of Paper Presented before the Section of Historical and Cultural Medicine, February 25, 1926

HISTORY OF PHOTOTHERAPY

HERMAN GOODMAN

The virtues of sunlight were known to the ancients. The Old Testament mentions a long line of sun worshippers. Greek and Roman students of the philosophy of medicine made deliberate use of sunlight. The Greeks were in the habit of exposing themselves unclad on the roofs of their dwellings for sunbathing as a health measure.

We can refer back to our own Hippocrates, the Father of Modern Medicine. He lived about 460 B. C. on the Island of Cos in the Greek Archipelago. A great health temple was erected to Aesculapius, god of the sun, medicine, and music. This temple was rediscovered recently, and the remains ex-

cavated. We are told that the priests were likewise the physicians. The natural agencies of air, light, and water were used.

The Romans made the sun an object of adoration. Solaria were built for sunbathing. Herodotus advised sunbaths for weak muscles. Other authorities of the time advices sunbathing for skin diseases.

The Egyptians were sun worshippers. Likewise the natives of South and Central America. Thorndike relates the influences the sunlight had over the emotional natures of man during the first thirteen centuries of the present era.

During the eighteenth century solar rays were utilized by Faure for treatment of leg ulcers. In the nineteenth century, Hufeland is said to have used sunlight in the treatment of rachitis. Leaders in this work of sun therapy include Bertrand, Leconte, Loebel, Moeschott, Edwards, Cauvins, Dobereiner, Ernst, and Sneigirew. The first solarium is said to have been built in modern times in 1840. That year Ollier and Poncet published, "Treatment of Tuberculosis Arthritis by Sunlight." Bonnet advised general body exposures by radiating the entire torso, not only the area of pathologic interest. Arnold Rickli published an article on "Atmosphere Cure" in 1855. During and after the War of 1870, various battle wounds were treated by exposure to sunlight.

Loebel, whom we mentioned earlier, set forth the conditions in which sun therapy would be harmful.

Niels Ryberg Finsen was the father of modern phototherapy. He was born in 1860. He spent his youth in Iceland. He studied medicine at Copenhagen, and graduated in 1890. He was physically unfit to practice medicine. He kept up studies in the influence of light which he had initiated as a youth. It is not possible to relate in brief the work of this man, but he predicated two ideas, one of negative light therapy, the exclusion of light in certain diseases, notably small pox; and the use of the invisible light, the actinic, or chemical ray, the ultraviolet rays. (For more complete treatment of Finsen's contribution see Medical Life, March, 1926).

The use of phototherapy must be preceded by a knowledge of the nature of light. For this one must go back to Newton's

prism experiments of 1666. He was the first to dissociate sunlight by means of a prism, and to determine the monochromatic nature of light.

Herschel, in 1800, discovered the infra red zone, the zone of invisible light beyond the red on the prism spectrum and which is translated to our senses as heat.

Scheele earlier (in 1777) had disclosed the invisible zone of the ultraviolet. These rays became the actinic or chemical rays because they were thought to be necessary for chemical reactions. Ritter, in 1801, is generally accredited with the discovery of ultraviolet.

Photography has taken its place through the work on the physics of light. Scheele, Ritter and others paved the way. Niepce and Daguerre produced the first practical process in 1830.

Advances have been possible through the substitution of quartz for glass in prisms; also through physiologic advances too numerous to mention. In 1873, Downes and Blunt showed that the bactericidal effect of sunlight was due to the invisible rays of the ultraviolet. Sunburn was shown to be due to the same area, and not to heat. The deleterious effects of sunlight were not missed. In 1832, Picon of New Orleans published observations on small pox patients who had been confined to a dungeon. In 1867 and 1871, Black, Barlow, and Waters wrote a series of articles on the action of light upon small pox.

Finsen, to revert to him, did not know about this work when he undertook his experiments. He would have found too, that light was excluded from small pox patients for many centuries. In the time of Queen Elizabeth red curtains and red lights were put about the beds of small pox patients. Other countries had the same custom.

Finsen's main contribution to phototherapy was his suggestion that all the rays of the sun were not equally of value in therapeutics. He was certain that the ultraviolet rays were the effective ones. In 1897, Finsen published his paper on "The Treatment of Lupus Vulgaris by Concentrated Chemical Rays."

Since the sun was not always available, Finsen devised an arc light. The development of artificial sources of ultraviolet

has progressed remarkably since Finsen's time. Unfortunately, the basic knowledge of physics has not been instilled so that light unsuited for the purpose is utilized and studies based on one zone of light, as for example the near ultraviolet of Finsen, is quoted in the advice of the persons utilizing an incandescent bulb whose emission factors are as different from that of the voltaic arc of Finsen as the pharmacology of strychnine is from that of morphine. The knowledge of the history of phototherapy thus finds a link with practical therapeutics. One must know what has gone before. One must engage in the study of the basic principles. One must get to the root of the matter. The historical approach is a valuable one in this respect.

BOOK REVIEW

Joannes Baptista Canano, 1515–1578, Girolamo da Carpi, 1501–1556. Musculorum humani corporis picturata dissectio (Ferrara, 1541?). Facsimile edition, annotated by Harvey Cushing and Edward C. Streeter. 98 pp. sm. 40. Florence, R. Lier & Co., 1925.

This volume is the fourth of a series of facsimile reprints of rare medical texts known as "Monumenta medica," published by Lier of Florence, under the general editorship of Professor Henry E. Sigerist (Leipzig). As Cushing observes, in his introduction, it belongs, with the *Fabulae anatomicae* sex of Vesalius (1538) and the *Christianismi Restitutio* of Servetus (1553), in a unique trio of medical classics which, through destruction by fire, throttling at birth or defacement by wear and tear of time, are "practically out of the reach of collectors." Only two copies of the Vesalian tables exist, and only three of the Servetus. Only one of the Canano pamphlet (that in the Dresden Library) was actually known to Choulant, although he mentions two others. Haller's copy, acquired from Viscount Bute's library, disappeared with the sale and dispersal of his books. Arnold Klebs has located seven copies of Canano in libraries at Pavia, Milan, Padua, Ferrara, Dresden, Berlin and London (British Museum), three privately owned by Professor V. Duccheschi (Padua), Pro-

fessor Harvey Cushing (Boston) and Dr. Leroy Crummer (Omaha) and one on sale at a shop in the Via del Babuino (Rome), making eleven in all. The interest of this book and the justification for its reprinting lies in the simple fact that between the appearance of the six anatomical tables of Vesalius (1538) and the publication of the *Fabrica* (1543), Canano, about 1541–2, published some 26 copperplate engravings of the myology and osteology of the arm and forearm which, in the words of Choulant, constitute "an attempt at lifelike delineation of the muscles, with an exactitude hitherto unknown." These plates, executed from drawings by the Ferrarese painter, Girolamo da Carpi, and intended as the first fasciculus of a projected anatomical treatise, show, as Streeter points out, the first accurate delineations of the palmaris brevis, the flexor brevis pollicis, the adductor minimi digiti and the interossei muscles. It is known that Vesalius, after finishing the Fabrica at Padua on August 1, 1542, and the Epitome on August 13, went down to Ferrara, presumably to see his brother Francis, who was Canano's assistant. Meeting between the two anatomists was thus inevitable. It is quite consistent with what we know of the overweening nature of Vesalius that he should have shown Canano the proofs of the wood-cuts in his own forthcoming work, whether genially or scornfully is beyond our ken. In any event, Canano, probably overwhelmed by the splendor and completeness of the larger enterprise, deliberately suppressed his own modest maiden effort, of which only a few copies had so far been circulated among his friends. Through this action, whether it were timorous, despairing, magnanimous or wonderfully decent, the little volume before us became excessively rare. To see these plates for the first time is to feel a pang of regret that so able an antomist "lost his nerve."

Canano, a man of Greek origin, came of a family or tribe of physicians. No less than eight Canani were lectors at the University of Ferrara, and of these, five lectured on medicine. Our author himself succeeded his uncle as professor of anatomy at Ferrara at the age of 26 (1541), and had acquired from his grandfather, who was court physician to Matthew Corvinus, first King of Hungary, a splendid collection of medical MSS., de-

scribed by Shakespeare's Dr. Caius, (whom Canano entertained in 1543) as "one of the six major private collections in Italy." Vesalius records that, being in consultation with Canano at Ratisbon in 1546, the latter told him of his discovery of multiple valves in the veins. The matter was sadly muddled by the blundering, if well-meaning, assertions of Amatus Lusitanus, but Canano maintained an obstinate silence. The controversy that ensued was subsequently forgotten. The valves were rediscovered by Fabricius in 1574. Canano's priority over Sylvius (1555), and Estienne (1555) was established by Morgagni (1740) and approved by Haller (1757). Columbus, as usual, tried to steal the palmaris brevis from him, but here Canano was valiantly defended by both Eustachius (1552) and Fallopius (1561). In 1552, Canano became physician to Pope Julius III and, in 1555, protomedicus to Duke Alphonso II of Ferrara, with whom he played a great part in the sanitation of estates "stretching half-way across Italy," and in combatting the epidemics of pleuro-pneumonia and plague which raged during 1564–77. Canano died on January 29, 1579. The story of "strange silent man" and the fate of his book has been told with lucidity and charm by our well beloved Streeter, whose painstaking scholarship has long since received the accolade of his teacher, Sudhoff. To realize the historical significance of these wonderful copperplates is a sensation out of all proportion to the moderate price of the reprint. In all the original copies extant, the thin paper is foxed and the printed text, on the opposite side, has come through the engravings. The pictures supplied to Sudhoff by Klebs were obtained as photographs from the Dresden copy by cutting the photos away from the disfiguring background and pasting them on white paper. A terminal essay by Dr. Arnold C. Klebs on the extant copies of Canano completes the attractive volume.

F. H. Garrison.

RECENT ACCESSIONS TO THE LIBRARY

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Cabot, R. C. Facts on the heart.
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Faber, K. Die Krankheiten des Magens und Darmes.
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N. Y. Century co., 1926, 873 p.

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Hahn, O. Die Chirurgie des vegetativen Nervensystems.
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Leip. Meiner, 1924, 319 p.

Hulbert, H. H. Voice training in speech and song.
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Hutinel, V. Les dystrophies de l'adolescence.
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Transactions of the American gynecological society. 1925.

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Oxford. Ohio, Miami univ., 1924, 197 p.

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Paris. Doin, 1925, 372 p.

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Berlin. Urban, 1924, 136 p.

DIRECTORY OF CONVALESCENT HOMES

Until recently no effort had been made either to bring together at periodic intervals those responsible for the management of convalescent homes or to appraise critically the available resources in this important field of health building.

The impetus in both directions was given last year when the Committee on Public Health Relations of the New York Academy of Medicine called a Greater New York City conference on the subject of institutional convalescence and presented a report on standards of convalescent care. The standards as worked out by the Committee on Public Health Relations constitute the first attempt at medical formulation of the objectives and guiding principles of convalescent management. This effort is regarded by the "Modern Hospital" as one of the outstanding achievements of the year in the field of institutional care of the sick.

The conference of June, 1924, led to the organization of a Convalescence Service in connection with the Hospital Information Bureau of the United Hospital Fund of New York. A permanent secretary is in charge of this Convalescence Service. An advisory committee of representatives of convalescent homes and social service institutions is directing the policies of the Service. The primary aim of the Convalescence Service is to develop the field of convalescent care and to make the available resources known throughout the community in order that the maximum use may be made of them.

The present directory is one of the methods by which it is hoped to achieve this result. It has been prepared with a great deal of care and gives the information as fully as is considered practical though in a somewhat telegraphic style. It supersedes the useful directory which has been for a number of years published by the Burke Foundation. It was intended that this directory should be of service to physicians and lay persons as well as to social workers and, therefore, much information has been included which may seem unnecessary to those already fully familiar with the field. The directory is in the form of a convenient booklet of 88 pages. It can be obtained in the office of the Bureau in the Academy of Medicine building.

DEATHS OF FELLOWS OF THE ACADEMY

Charles W. Packard, M.D. (New York University Medical College, 1855), died at his home in Stratford, Conn., on March 27th last, in his 94th year and his body was buried at his birthplace, Brunswick, Me.

He studied at Bowdoin College from which he received the degree of A.M. in 1883. After graduation in medicine in New York City, he became assistant to Dr. E. R. Peaslee and demonstrator of anatomy at Dartmouth College. In 1865 he was appointed assitsant physician to the City Hospital on Blackwell's (now Welfare) Island, New York City, and served there for several years.

During the Civil War he served in the United States Army as a volunteer surgeon on Bedloe's Island, New York Harbor, after which he occupied successively the positions in St. Luke's Hospital, New York City, of resident and attending physician. In 1878 he was appointed consulting physician to that institution and continued as such until his death. From 1895 until 1905 he was president of its medical board.

He became a Fellow of The New York Academy in 1871 and at the time of his death was the oldest Fellow.

In his active years he was associated with Drs. Sands, Austin Flint and Willard Parker and the other medical men of their place and generation, outliving them all and retiring from practice in 1915 when he removed to Stratford.

As well as being a skilled diagnostician and clinician, he was a gentleman of culture and refined tastes, beloved by a host of persons.

W. S. T.

Samuel Wood Thurber, B.S. (Princeton, 1890), M.D., 48 East 64th Street, New York City; born in Walpole, Mass., September 4, 1867; graduated in medicine from the College of Physicians and Surgeons, New York City, in 1894; elected a Fellow of the Academy May 19, 1904; died March 16, 1926. Dr. Thurber was a Fellow of the American Medical Association, a member of the Society of Alumni of the Presbyterian Hospital and Sloane Hospital.

William Henry Katzenbach, A.B. (Princeton, 1867), A.M. (Princeton, 1870), M.D., 139 West 78th Street, New York City; graduated in medicine from the Bellevue Hospital Medical College, New York City, in 1871; elected a Fellow of the Academy March 2, 1876; died March 19, 1926. Dr. Katzenbach was a member of the Society of Alumni of Bellevue Hospital, and attending physician at the Polyclinic Hospital.

Arthur Sherwood Corwin, Rye, New York; born in Newark, N. J., December 16, 1871; graduated in medicine from the New York University Medical School in 1898; elected a Fellow of the Academy October 7, 1909; died March 24, 1926. Dr. Corwin was a Fellow of the American Medical Association, a member of the Alumni Association of New York Hospital, attending physician at United Hospital, and attending pediatrician at the County Hospital, Grasslands.

Henry Moffat, A.M. (Princeton, 1878), M.D., 139 Park Avenue, Yonkers, N. Y.; born in Princeton, N. J., December 20, 1855; graduated in medicine from the College of Physicians and Surgeons, New York City in 1881; elected a Fellow of the Academy January 15, 1891; died March 25, 1926. Dr. Moffat was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the Society of Alumni of St. Luke's Hospital, consulting surgeon at St. Joseph's Hospital, Tarrytown and Ossining.

DONATIONS TO THE LIBRARY FUNDS

Donations and bequests are solicited by The New York Academy of Medicine for the maintenance and expansion of the Library.

A donation or bequest of $5,000 or more will provide for a special library fund, the income of which may be used for the general purposes of the Library or restricted to the purchase of books and periodicals, as the donor or testator may indicate.

FORM OF BEQUESTS

The following is a brief legal form as a suggestion under which bequests may be made in behalf of the Academy:

I give, devise and bequeath unto "The New York Academy of Medicine" of the City of New York, State of New York, a corporation duly incorporated by the Legislature of the State of New York by an act, entitled "An act to incorporate The New York Academy of Medicine," passed June 23, 1851, and amended June 4, 1853, June 2, 1877, and April 25, 1924.

DATES OF MEETINGS

Stated Meetings of the Academy, 1st and 3rd Thursdays.
Trustees, 2nd Wednesday.
Council, 4th Wednesday.
Committee on Library, 2nd Tuesday.
Committee on Admission, 1st Wednesday.
Public Health Committee, Mondays.
Committee on Medical Education, 2nd Thursday.
Building Committee, 1st and 3rd Tuesdays.
Publication Committee, date varies.
Program Committee, date varies.

DATES OF SECTION MEETINGS

Dermatology and Syphilis, 1st Tuesday.
Surgery, 1st Friday.
Neurology and Psychiatry, 2nd Tuesday.
Pediatrics, 2nd Thursday.
Otology, 2nd Friday.
Ophthalmology, 3rd Monday.
Medicine, 3rd Tuesday.
Genito Urinary Surgery, 3rd Wednesday.
Orthopedic Surgery, 3rd Friday.
Obstetrics and Gynecology, 4th Tuesday.
Laryngology and Rhinology, 4th Wednesday.
Historical and Cultural Medicine, date varies.

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